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PACIFIC 1® NORTHWEST INDUSTRIES

Seattle-First National Bank
June 1982
Annual Review

Linkages

Nations and regions may exceed or fall short of the pace of world economic growth depending on their endowments of natural and human resources and their ability to mobilize capital and technology to develop and market those goods and services in which they hold a comparative advantage.

In a homogeneous world, regional economic studies would have no place. Diversity abounds, however, and exchanges between regions are the mechanism giving access ot a wide range of goods and services in areas with markedly skewed industrial structures.

Washington State is far from being a microcosm of the world, or even of the United States. Economically it prospers as a specialist capitalizing on its location, amenities, well-educated work force, and rich mix of land and water resources. Washington-produced foodstuffs, forest products, aircraft, nonferrous metals, machinery, and electronic equipment are largely destined for markets outside the state; goods for local consumer markets, as well as minerals for processing, for the most part, originate elsewhere.

The sea has always been a major avenue for Washington State trade; up until the late Nineteenth century, ocean transport was the only efficient mode of moving cargo to and from Washington State. As a result, early development concentrated near navigable waters, and commerce focused on California and, to some extent, Alaska and the Orient. The coming of railroads shortly before the turn of the century, motor vehicles shortly after, and commercial air transport beginning in the Twenties provided new flexibility for industrial location, greater personal mobility, and access to additional markets in the continental United States. As transport costs have risen sharply in the latest decade, viable marketing territories have tended to shrink back. Washington State, however, has the advantage of proximity to the rapidly developing regional economies of the western United States and a most favorable positioning for foreign trade.

The Pacific Ocean link remains Washington's trump card. The state has deep water ports significantly closer to Japan and other North Pacific destinations than ports further south. With good rail linkages, development of Washington ports has allowed the area to become not only a major exporter for its own account but also an important gateway for containerized and other cargo moving to and from states east of the Rockies.

A second big plus for Washington State is its reputation as a location offering a high quality of life. With the increasing shift of the national economy toward services, especially information processing, and toward high technology manufactures, more and more businesses are footloose — able to operate efficiently almost anywhere with good communications and transportation connections. For such firms, amenity factors are a key consideration.

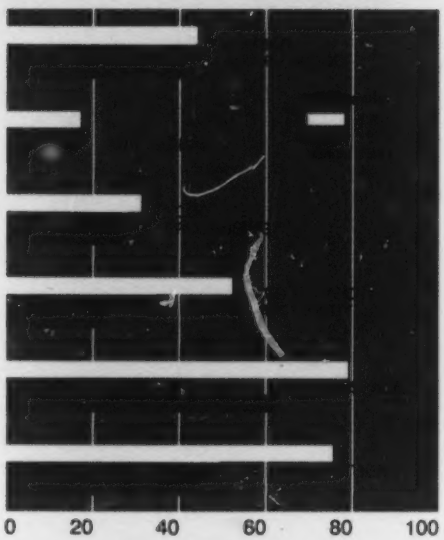
In addition, high technology firms are attracted to locations where the knowledge business is already well entrenched due to symbiotic interaction of quality educational institutions and existing businesses at the forefront of technology. Washington's recent success in capturing a share of the expansion of such industries is thanks in part to the presence not only of highly regarded universities and colleges but also the Boeing Company, the nucleonics complex at Hanford, and long-established specialists in electronics and instrumentation. Firms making sophisticated equipment find a Washington location no impediment either to marketing nationally and worldwide or to recruiting additional workers from elsewhere as their business expands.

Whenever job opportunities are expanding, people in large numbers relocate into the state. Awareness of the amenities of the Pacific Northwest lifestyle is widespread, both due to media coverage and to personal observation by the growing numbers who have been here on visits, as students, or during military service. When options are available, many choose to make a living in a nice place to live. Senior citizens are also building communities in those parts of the state with particular scenic attraction and/or equable climate, and the annual net influx of travelers — coming to Washington State for business, for pleasure, or just passing through — has become a major prop to economic activity.

Trade, technology, and travel all are of rising importance to the Washington economy. The traditional resource industries, nonetheless, remain a major source of income to the region. Most of Washington State's timber and crops are exported to other parts of the United States and abroad; so too is most of the state's production of aluminum. Concentrations of activity in producing these regional resource specialties generate the wherewithal to make possible both the import into the region of goods produced more efficiently elsewhere and the creation of a growing superstructure of local distributive and service industry.■

MANUFACTURING EMPLOYMENT
Washington State
1961, 1971, 1981

Consistent employment gains in metals/machinery and other manufacturing have diversified Washington State's industrial base. These sectors now account for 43 percent of the total, up from 32 percent in 1961. Resource-based industries have remained fairly stable, while aerospace has followed a more cyclical pattern.



Source: Washington State Employment Security Department

In & Outs Of Manufacturings

Manufacturing in Washington State involves a variety of trade linkages both with other regions of the nation and with foreign countries. Based on 1972 data*, Washington manufacturers made nearly 70 percent of their sales beyond the state's borders; 12 percent involved foreign markets. On the input end of the production pipeline, Washington State was the source for many of the needed raw materials and semiprocessed goods; even so, state manufacturers bought slightly over half of their requirements out of state. Rapid growth in state manufacturing during the second half of the Seventies no doubt required even more diversified and expanded regional ties with respect both to markets and suppliers.

Not surprisingly, the relative strengths of local, regional, national, and international ties vary considerably among industry segments. Resource-based manufacturers — canneries, lumber and plywood mills, pulp and paper plants — satisfy up to 85 percent of their raw material needs locally. Other manufacturers are very dependent on Washington markets — the printing and publishing industry for example. A few local commodities both are processed and largely resold within the state. Dairy products, for example, mostly fill statewide needs based on locally-available inputs.

As a substantial part of basic industry — that which pulls income into the region — manufacturing activities are of special importance. The 1972 and earlier input-output studies of Washington economic activity provided some insight on transactions with various non-Washington markets. A sampling of manufacturing activities conducted in 1978** provides further information. Sampled firms had sales totalling some $4 billion, roughly one sixth of Washington total manufacturing sales in that year, and by design included a large proportion of firms expected to have non-Washington ties of some type.

* *Crab shuckers process Dungeness crab in Westport. Washington seafoods — fresh, frozen, and canned — are shipped to national and international markets. Courtesy of Washington Crab Producers, Inc.*

Market Mechanics

One major group of Washington manufacturers, accounting for about 30 percent of manufacturing sales, exhibits both strong local as well as nonlocal ties. Lumber, plywood, and pulp and paper mills sell mostly Washington forest products, although a few purchase raw materials from Oregon, California, and Canada. Sales are primarily out of state, with western U.S. markets particularly important. Aluminum refiners sell mostly in U.S. markets but purchase inputs from a variety of sources — electric energy locally, alumina from foreign countries. Various metals fabricators purchase from a range of local, national, and international sources; on the basis of 1978 sample data about two thirds of sales are to Washington markets. For the major group as a whole, reasons for locating in Washington are varied. For some firms proximity to natural resources, including energy, is more important than proximity to markets. In the case of metals fabrication, local markets seem the more commonly controlling factor.

A second major group of Washington manufacturers, accounting for about 12 percent of sales, displays less prominent ties to the local economy from the standpoint of either purchases or sales. Outputs of this group include machinery and equipment, motor vehicles, and ship and boat building and repair. Based on the 1978 sample, nonlocal purchasing links include other western states, the industrial Midwest, and foreign nations — notably Japan and Canada. Sales are extremely diversified regionally. Washington and California are the most important market areas, but products are shipped to many states — New York, Illinois, Texas, Oregon — as well as Canada, Japan, and Western Europe. Such diverse trade linkages call into question why firms in this group located in Washington State, specifically. The answer is not clear-cut, but in at least some cases producers of specialized machinery, equipment, vehicles, and boats developed in response to markets offered by regional industries: logging equipment; fishing boats; farm, construction, and paper processing machinery. From this base, firms have expanded product lines and markets both nationally and internationally. Other firms deal in products where transportation

cost and hence market proximity is a less compelling location factor than availability of labor supplies and plant sites. Furthermore, the Pacific Northwest provides a central production location for firms which have expanded beyond U.S. markets to sell in western Canada, Japan, and other Pacific Rim nations.

These industries, characterized in both the 1972 and 1978 studies as serving largely out-of-state markets, have lately been growth leaders in the local economy. From 1975 through 1980 — a period of very rapid state expansion — employment in the group advanced by nearly 50 percent compared with a 27 percent gain for manufacturing as a whole.

Export Power

For the entire manufacturing sector of the Washington economy, 68 percent of sales in 1972 were to other states, foreign countries, or the federal government. In the selected 1978 sample, the comparable figure was 74 percent. With respect to goods and services purchases, 55 percent and 62 percent, respectively, were reported as coming from out of state. Although the coverage of industry sectors differs, both studies suggest sales are more externally-oriented than are purchases — not surprising for a state that hosts significant resource-based industry. Industry responses in 1978 suggest that regional sales to other parts of the U.S. were somewhat more dispersed than purchases. Next to Washington, California rated as the largest single domestic market. Oregon, Texas, and Illinois followed. Other markets spread across the industrial Midwest and Northeast. In general, market importance increased with population but decreased with distance. Purchases were more heavily concentrated in Washington. Purchasing patterns elsewhere in the U.S. seemed to favor western states to a greater extent than did the market distribution. Foreign purchases and sales were widely dispersed around the globe.

• *Titanium-rich black sands from Australia are the prime input to the newly-opened International Titanium, Inc. plant at Moses Lake. Courtesy of Columbia Basin Daily Herald.*

The 1978 survey shows that development of out-of-state markets has been successfully accomplished by firms of all sizes. The smaller firms sampled, defined as those with 75 employees or less, reported quite diverse markets. Sales territories emphasized the West but extended across the industrial Midwest and Northeast. Among domestic markets outside of Washington, the larger firms appeared to be most closely linked with California and with major industrial states such as Texas, Illinois, and Michigan. The studies suggest a number of positive points favoring healthy future growth in the manufacturing base in Washington. Washington firms are able to identify and serve diverse markets;high growth industries are able to operate in Washington with strong nonlocal linkages in both purchases and sales; small firms are able to participate successfully in developing out-of-state markets. The extent to which rising transport costs may have modified supply and marketing patterns cannot be read from the studies reviewed. The web of spatial linkages remains a promising direction for further research to build understanding of what makes Washington grow.■

* *The Input-Output Structure of Washington State, Graduate School of Business Administration, University of Washington, 1976.*

** *Washington Spatial Linkages Survey (unpublished), Department of Geography, University of Washington, 1981.*

Two World-Class Companies

Most of the trade linkages of Washington manufacturers have been established by middle market and smaller firms. Logically so. This reflects the characteristic structure of Washington's manufacturing base: Washington has approximately 7,000 firms engaged in manufacturing. Of that total, roughly 70 percent have less than 20 employees, with only 1 percent having 500 workers or more. Still, the fortunes of the largest firms set the tone of the economy. Washington's top two manufacturing companies are Boeing and Weyerhaeuser, manufacturers of aircraft and aerospace equipment and forest products, respectively. Both are multi-regional in their manufacturing operations, but significant operations are centered in Washington State. Both are headquartered in the Puget Sound area. A quick overview of these firms gives further evidence of significant regional interties.

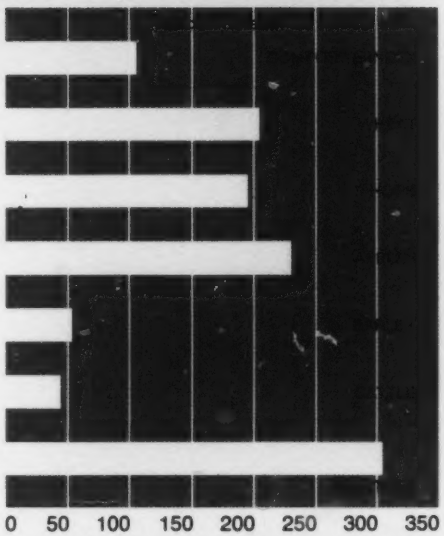
Air Waves

The Boeing Company is located in Washington State through sheer happenstance — the migration of the Boeing family into the area because of timber resources, and the early fascination of a son, William Boeing, in flying as a hobby. Out of that interest

• *The 767 along with the smaller 757 — leaders in a new generation of fuel-efficient, technologically-advanced jetliners — will be Boeing's main offerings in the Eighties. Courtesy of Boeing Commercial Airplane Company.*

AGRICULTURE PRODUCTION INCREASES
Washington State
1961 - 1981

Washington's agricultural production has grown vigorously since 1961 in response to steadily increasing demand, both domestic and foreign. Advances in technology have led to large increases in productivity, allowing substantial output growth to occur concurrent with diminishing acreage and labor input. The production composite displayed is an index of physical output of an aggregate of 14 of Washington's leading farm products, weighted by total values in 1963-1964.



Source: U.S. Department of Agriculture

developed the largest manufacturer of aircraft in the world, with 50 to 60 percent of the total commercial market, and $9.8 billion in sales in 1981. Location of operations in Washington State poses no problems. The Boeing product transports itself, and the company markets worldwide.

For many years, Boeing has ranked as the nation's largest single exporter. Last year, deliveries were split 60/40 between foreign and domestic customers, with Europe and Asia accounting for 42 percent and 30 percent of non-U.S. sales, respectively. The rest of the Western Hemisphere accounted for 13 percent; Oceania, 10 percent; and Africa, the remaining 5 percent. Totalling sales over the past five years gives a slightly higher historical proportion to Asia vis-a-vis Europe. Boeing looks to the non-U.S. commercial airliner market to continue to take a 60 percent share of the $126 billion (1982 dollars) new aircraft market forecasted to 1992, and Boeing hopes to capture a large share despite increased competition from European Airbus Industries. Domestic competition has been lessened by the departure of Lockheed from commercial aircraft production.

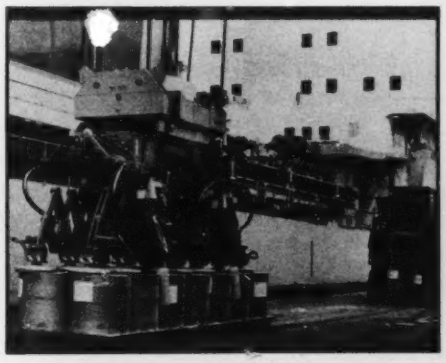
Approximately 81 percent of Boeing's overall efforts, as measured in terms of backlog and/or revenue, is in the commerical arena. The remaining 19 percent is mainly military product, sold primarily to the U.S. government. For FY1981, Boeing was the fifth largest defense contractor in the U.S. Further, Boeing's broad diversification into such areas as computer services, environmental products development, and engineering and construction comprises a small but growing share of the total business, with markets in locations throughout the U.S. and abroad.

In terms of supply, Boeing typically subcontracts 50 percent of its aircraft manufacture. Half of Boeing's sales dollar goes to some 5,000 subcontrators located in virtually every state of the nation and selected foreign countries. Major concentrations currently include California, Washington, and Arizona and other states mainly in the southwest and north central regions and the middle Atlantic seaboard. Foreign subcontracting extends to England, Canada, France, Northern Ireland, Germany, Switzerland, Australia, Japan, Italy, and Spain. The new generation 757 and 767 aircraft have major program participants in Italy and Japan. Boeing's impact looms even larger when additional tiers of suppliers to major subcontrators are considered.

Timber Ties

Timber has formed the economic backbone of western Washington and Oregon historically, and Weyerhaeuser's presence reflects that resource. Weyerhaeuser owns some 5.9 million acres of commercial forestland with an estimated timber inventory of roughly 11 billion cubic feet operated under sustained yield. Much of that is in the Pacific Northwest. Product shipment from the region runs the full range of forest products from logs to finished lumber and paper. Each product attracts a somewhat different market, but because of bulk and rising transportation costs, forest product markets increasingly are regional in nature. For the Pacific Northwest, this means the western states and the Pacific Rim countries.

On total sales of $4.5 billion in 1981, Weyerhaeuser directed approximately 20 percent, or $940 million, into foreign export, sufficient to rank the company as the ninth largest exporter in the U.S. Of products originating in Washington and Oregon, as much as 45 percent typically goes overseas. Of that, fully two thirds goes to Japan. In contrast to linerboard, pulp, finished lumber, and plywood shipped to Europe, the Japanese market takes mainly pulp, newsprint, woodchips, and logs. Weyerhaeuser is pushing actively, however, to increase finished-product sales in the Far East. Japan just recently agreed to open the plywood market for U.S. shipments; negotiations are proceeding on U.S. dimension lumber. Last year, Weyerhaeuser shipped some 8.4 million board feet of lumber to the People's Republic of China — the largest U.S. shipment since World War II. Weyerhaeuser began selling China linerboard in 1972 and logs in 1980. The western U.S. and the Pacific Rim countries represent major growth centers,



• *Cannisters of newsprint bound for Japan are loaded at the Port of Longview. The mill producing the paper is a joint venture between a Japanese corporation and North Pacific Paper, a Weyerhaeuser subsidiary. Courtesy of Weyerhaeuser Company.*

which should continue to provide Weyerheauser with healthy outlets in the future. Overseas opportunities should offset the constraining impact of increasing regionalization of forest products markets domestically.

The Weyerhaeuser presence is also extended by activity of the Weyerhaeuser Real Estate Company, a subsidiary engaged in on-site construction and sale of residential properties, mortgage banking, and other real estate services. These activities are conducted from offices located in population centers in Florida, Texas, Washington, California, Nevada, New Jersey, North Carolina, and Maryland.■

Natural Resource Flows

Natural resource commodities and products both originate in Washington and also flow into the state for processing and/or distribution. Timber from local forests, crops and livestock from local and distant farms, petroleum from Alaska and abroad, and seafoods from Alaskan waters are handled in Washington and then distributed out to wider final markets. Natural gas is imported for the local consumer market. Raw logs and chips are sent to the Far East for manufacture, while wood fibers for pulping are brought in. Finally, electricity from Washington's hydro facilities goes to California and other Pacific Northwest states, but Washington also purchases power from California and from British Columbia as well.

Energy Flux

Refineries in Washington produce petroleum products for the entire Pacific Northwest and northern California. First served by imports from Canada, later increasingly by inputs from California and overseas, the refining industry in recent years has been adjusting to accommodate oil from Alaska's North Slope. Of the four major refineries in Washington State, three will be processing Alaskan crude by mid-1983.

Natural gas burned by Washington households and businesses is piped in either from the Canadian provinces of B.C. and Alberta or from Colorado and New Mexico. From 1973 to 1980, the value of gas sold rose 380 percent, entirely due to price gains; real consumption of gas fell by almost a third as users employed conservation measures and/or switched fuels to avoid the price increases.

Price sensitivity has also been evidenced by shifts in the mix between Canadian and domestic supplies. The price of gas from western Canada is tied to the price of imported oil on Canada's east coast. Since regulation has held natural gas prices in the U.S. below market levels, pipelines have substituted domestic gas for Canadian gas.

A total of 102.6 billion kilowatt hours of electricity was generated in Washington in 1981. It is difficult to ascertain how much of this was exported because the Bonneville Power Administration markets from a pool of electricity generated at 30 federal dams located in Oregon, Idaho, and western Montana, as well as in Washington. Of the 81 billion kwh from federal dams which BPA marketed in 1981, 8.7 billion were sold outside the Pacific Northwest, with 7.7 billion going to California.

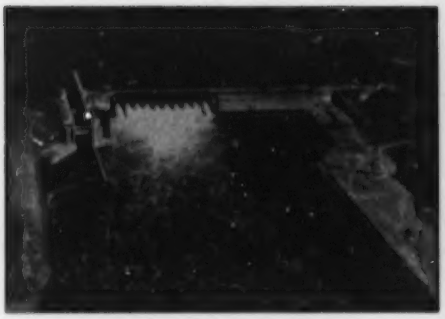
Utilities in California also buy significant amounts of "surplus" electricity from private and nonfederal public producers in Washington. In 1981, net sales totalled 4.2 billion kwh.

Tielines with California permit energy transfers in both directions, of course, with the Pacific Northwest able to purchase to meet winter loads, especially in low water years. In addition, Pacific Northwest utilities buy Canada's share of the increased production potential derived from the three Columbia River Treaty dams in British Columbia. These dams raise the capacity of downstream facilities in the Pacific Northwest by controlling stream flow.

The Seafood Complex

Washington fisheries might be defined as those completely under the regulation of the State Department of Fisheries, that is, those on the inland waters of Puget Sound, lakes and rivers, and the ocean within three miles of shore. However, the Department also has important inputs to the various international commissions (e.g., the International Pacific Halibut Commission) which regulate the Pacific Ocean fisheries that are worked by Washington fishermen and from which fish are landed at Washington ports; the Department also adopts the regulations passed by these commissions. Washington State serves as a processing and distribution center not only for seafoods harvested locally, but for a portion of the much larger Alaskan catch as well.

Sales of seafoods landed in Washington are heavily oriented to the foreign export market. About 75 percent of the frozen salmon is shipped to Japan, with most of the balance going to southern California. Canned salmon normally goes to the East Coast and to Europe. Crab and other shellfish flow to both local and national markets; while bottomfish (cod, sole, rockfish, etc.) are generally frozen as fish sticks or fillets and sold to California and East Coast distributors. Alaska King and snow crab, like salmon, has a large East Asian market for the frozen product, as well as domestic markets.



In good water years, Washington is able to export energy from its well-developed hydroelectric system. This generating complex is at Ice Harbor Dam on the Snake River near the Tri-Cities. Courtesy of Bonneville Power Administration.

Food Fair

Washington's agricultural production creates a substantial amount of export traffic — both interstate and international. Close to 90 pecent of Washington's wheat crop is exported to other nations, and much of the remaining 10 percent is processed outside Washington. The soft white wheat grown in Washington is particularly well suited for making noodles, hence it is a preferred variety in much of Asia.

Washington apples are exported to destinations ranging from Asia to the American Midwest; the state is number one among the fifty states in both total production and foreign exports. Fresh and processed potatoes are marketed as far away as Japan, and Washington's large share of world hops production results in substantial export as well as domestic traffic. Other crops sold in quantity outside the state include sweet cherries, pears, asparagus, dry peas, and mint oil; in contrast, products such as hay, milk, beef, and eggs, while large in value produced, are primarily for local consumption. Finally, farm products from other states, most importantly wheat from Montana and corn from the Midwest, also provide income to Washingtonians as they pass through by rail and barge to the ports for shipment overseas.

Timber Transfers

The export of logs and woodchips to foreign countries is important to the Washington State forest products industry.

STATISTICAL SUPPLEMENT TO PACIFIC 1. NORTHWEST INDUSTRIES

BASIC INDICATORS OF WASHINGTON BUSINESS AND INDUSTRIAL ACTIVITY

All indexes based on 1967 average = 100

POPULATION & INCOME

YEAR	POPULATION [a] Washington	PERSONAL INCOME [2] Washington		CONSTRUCTION ACTIVITY Washington		GROSS BUSINESS INCOME [4] Washington		RETAIL SALES Total Taxable Sales Washington			YEAR
		Total millions of dollars	Per Capita dollars	Total Construction Contracts [3] millions of dollars	Adjusted Building Index [b]	Total	Manufacturing	Actual millions of dollars	Index	Adjusted Index [e]	
						millions of dollars					
1935-39 Avg.	1,675	959	572	na	17.2	na	na	575.3	7.4	18.7	1935-39 Avg.
1940-44 Avg.	1,919	2,253	1,149	na	29.2	na	na	1,166.8	15.0	32.1	1940-44 Avg.
1945-49 Avg.	2,263	3,387	1,497	na	40.7	na	na	2,381.7	30.5	48.7	1945-49 Avg.
1950-54 Avg.	2,448	4,615	1,885	na	53.8	na	na	3,374.9	43.3	56.8	1950-54 Avg.
1955-59 Avg.	2,718	5,895	2,169	na	64.0	na	na	4,299.5	55.1	66.5	1955-59 Avg.
1960-64 Avg.	2,919	7,492	2,567	na	64.2	na	na	5,171.3	66.3	73.1	1960-64 Avg.
1965-69 Avg.	3,162	10,948	3,462	1,226.5	91.1	29,173.9[c]	9,112.3[c]	7,752.0	99.4	98.4	1965-69 Avg.
1970	3,413	13,658	4,002	1,478.2	88.4	31,372.2	10,023.3	9,070.0	116.3	102.0	1970
1971	3,433	14,317	4,170	1,155.5	68.9	33,140.0	10,059.1	9,339.5	119.7	102.9	1971
1972	3,423	15,534	4,538	1,556.6	85.7	36,290.7	10,472.0	10,107.5	129.6	106.3	1972
1973	3,443	17,486	5,079	1,633.2	77.4	44,217.1	13,277.8	11,448.3	146.8	115.2	1973
1974	3,503	19,733	5,633	2,186.8	80.1	52,674.0	15,093.7	12,865.1	164.9	116.5	1974
1975	3,563	22,426	6,294	2,019.3	85.0	58,053.2	15,586.9	14,493.3	185.8	119.3	1975
1976	3,623	25,026	6,908	3,480.2	96.9	65,540.3	17,550.7	16,693.2	214.0	130.1	1976
1977	3,693	27,854	7,542	2,976.2	116.7	73,664.9	19,453.2	19,336.5	247.9	139.6	1977
1978	3,793	32,718	8,626	4,426.8	141.1	86,848.2	23,593.2	22,225.8	285.0	146.3	1978
1979	3,926	37,831	9,636	5,695.6	142.9	106,102.9	28,889.4	23,879.3	306.1	141.5	1979
1980	4,037	42,869	10,375	4,795.1	107.8	117,374.2	32,654.6	24,632.9	315.8	125.3	1980
1981	4,217	47,511	11,267	3,639.2	90.1	125,310.0[d]	31,975.0[d]	26,361.2	338.0	120.8	1981

LABOR FORCE DATA

YEAR	Civilian Labor Force	Unemployment	Unemployment As Percent of Labor Force	Total Employment	Total Wage and Salary Workers [j]	Manufacturing Employment [j]	Aerospace Employment	Forest Products Employment	Other Manufacturing Employment	Non-Manufacturing Employment [j]	YEAR
	thousands of workers					thousands of workers					
1935-39 Avg.	na	na	na	na	408.5[k]	113.3[k]	3.5[k]	60.0[k]	49.8[k]	295.2[k]	1935-39 Avg.
1940-44 Avg.	na	na	na	na	534.7	222.4	27.3	70.9	124.2	412.2	1940-44 Avg.
1945-49 Avg.	937.1[h]	59.4[h]	6.3[h]	864.4[h]	676.7	187.6	19.1	65.8	102.7	489.2	1945-49 Avg.
1950-54 Avg.	985.9	46.7	4.7	924.3	730.9	192.7	29.5	69.9	93.3	538.2	1950-54 Avg.
1955-59 Avg.	1,057.3	58.5	5.5	998.7	791.7	215.9	55.8	64.5	95.6	575.8	1955-59 Avg.
1960-64 Avg.	1,117.9	70.2	6.3	1,047.1	838.7	218.8	62.0	62.3	94.5	619.9	1960-64 Avg.
1965-69 Avg.	1,303.0[i]	68.3[i]	5.2[i]	1,203.0[i]	1,030.2	266.7	87.3	65.7	113.6	763.5	1965-69 Avg.
1970	1,414.0	130.0	9.2	1,284.0	1,080.0	239.4	61.5	62.0	115.9	840.6	1970
1971	1,394.0	141.0	10.1	1,253.0	1,065.2	214.7	40.5	61.5	112.7	850.5	1971
1972	1,425.0	136.0	9.5	1,289.0	1,100.1	224.1	41.1	67.1	115.9	876.0	1972
1973	1,470.0	116.0	7.9	1,354.0	1,152.3	244.2	50.1	69.3	124.8	908.1	1973
1974	1,512.0	108.0	7.1	1,404.0	1,198.0	253.6	54.1	68.5	131.0	945.3	1974
1975	1,538.0	147.0	9.6	1,391.0	1,225.7	244.0	50.4	63.6	130.0	981.7	1975
1976	1,622.0	140.0	8.7	1,482.0	1,283.1	247.4	45.0	68.4	134.0	1,035.7	1976
1977	1,692.0	148.0	8.7	1,544.0	1,367.0	260.0	46.1	71.6	142.3	1,107.0	1977
1978	1,809.0	124.0	6.9	1,685.0	1,485.6	284.7	59.8	69.1	155.8	1,200.9	1978
1979	1,937.0	131.0	6.8	1,806.0	1,581.2	309.6	72.6	73.1	163.9	1,271.6	1979
1980	1,982.0	156.0	7.9	1,826.0	1,608.3	308.7	76.6	64.6	164.5	1,299.6	1980
1981	1,987.0	189.0	9.5	1,798.0	1,598.3	301.9	79.1	61.2	161.6	1,296.4	1981

FOREST PRODUCTS

YEAR	Lumber Production [11] Washington p	Lumber Production [11] Oregon p	Pulp [1] Production Washington	Plywood [12] Production Northwest q	YEAR
	millions of board feet		thousands of tons	millions of square feet	
1935-39 Avg.	4,066	4,026	963	711	1935-39 Avg.
1940-44 Avg.	4,719	5,150	1,407	1,524	1940-44 Avg.
1945-49 Avg.	3,497	6,692	1,503	1,585	1945-49 Avg.
1950-54 Avg.	3,506	8,554	2,107	2,901	1950-54 Avg.
1955-59 Avg.	3,225	8,041	2,587	5,292	1955-59 Avg.
1960-64 Avg.	3,444	7,408	3,094	8,021	1960-64 Avg.
1965-69 Avg.	3,429	7,257	3,741	9,582	1965-69 Avg.
1970	3,189	6,680	3,848	9,132	1970
1971	3,498	7,413	3,508	9,955	1971
1972	3,749	7,943	3,635	10,548	1972
1973	3,842	8,194	3,674	10,498	1973
1974	3,222	7,007	3,583	8,697	1974
1975	3,104	6,342	3,127	8,574	1975
1976	3,661	7,335	3,399	9,310	1976
1977	4,031	7,509	3,582	10,122	1977
1978	4,150	7,416	2,903	10,311	1978
1979	3,851	7,312	3,313	9,656	1979
1980	3,161	5,784	3,426	7,512	1980
1981	2,978	5,446	na	6,943	1981

AGRICULTURAL PRODUCTION — WASHINGTON [13,14]

YEAR	WHEAT	MILK	BEEF CATTLE [r]	APPLES	POTATOES	HAY	BARLEY	YEAR
	thousands of bushels	millions of pounds	thousands of pounds	thousands of tons	thousands of cwt.	thousands of tons	thousands of bushels	
1935-39 Avg.	48,142	1,920	165,143	662	4,731	1,702	2,356	1935-39 Avg.
1940-44 Avg.	54,959	1,994	212,868	645	4,883	1,832	8,646	1940-44 Avg.
1945-49 Avg.	68,728	1,829	199,091	716	6,543	1,579	3,680	1945-49 Avg.
1950-54 Avg.	76,524	1,733	262,380	575	6,859	1,503	6,392	1950-54 Avg.
1955-59 Avg.	67,024	1,842	338,125	582	10,074	1,741	24,975	1955-59 Avg.
1960-64 Avg.	69,184	1,925	376,508	553	11,621	1,910	26,090	1960-64 Avg.
1965-69 Avg.	100,750	1,956	405,212	673	23,195	2,291	14,230	1965-69 Avg.
1970	97,075	2,091	404,578	697	33,590	2,335	19,458	1970
1971	113,210	2,230	423,225	500	30,110	2,438	27,840	1971
1972	123,328	2,307	427,420	697	31,365	2,467	14,190	1972
1973	89,200	2,338	437,030	930	35,260	2,215	14,235	1973
1974	122,220	2,312	445,340	903	41,160	2,577	13,950	1974
1975	145,140	2,322	416,780	1,100	48,300	2,391	21,200	1975
1976	144,050	2,428	428,870	1,154	55,800	2,446	21,060	1976
1977	101,305	2,549	399,525	1,042	50,600	2,432	9,450	1977
1978	128,160	2,675	429,180	1,074	50,505	2,638	23,180	1978
1979	118,000	2,817	458,670	1,310	48,450	2,494	17,010	1979
1980	160,220	2,942	491,370	1,502	43,935	2,625	32,250	1980
1981	168,350	3,017	515,730	1,350	52,380	2,542	44,080	1981

FOOTNOTES

a July 1 estimates, except for April 1 counts in decennial census years.

b Index measures residential and nonresidential building construction, adjusted for cost fluctuation, prior to 1961, based on valuation of building permits for 27 cities and 3 counties of the state; 1962 to present from F.W. Dodge; cost adjustment is the American Appraisal Company index.

c 1963-69 average.

d Estimated by Economic Research Department, S-FNB.

e Adjusted for price fluctuations; divided by Seattle consumer price index.

f U.S. average.

g Seattle annual average.

h 1947-49 average.

i Series not comparable prior to 1967. Average reflects 1967-69 series based on place of residence.

j Originally published data adjusted to reflect Bureau of Labor Statistics benchmark revisions for the years 1958 through 1967; data also adjusted insofar as possible to reflect changes resulting from reclassification of industries, but no adjustment made for January 1971 shift of 1,900 Boeing Computer Services workers from manufacturing to nonmanufacturing.

k 1938-39 average.

l Figures commencing with 1959 exclude Montana pack, amounting to less than 1 percent of the Pacific Northwest totals.

m Figures prior to 1948 adjusted to new basis.

n Starting in 1983, data include production in Idaho, mainly potato products.

na Not available.

o Less than one thousand.

p Figures commencing with 1960 exclude small amounts of hardwoods produced in Inland Region.

q Softwood plywood. Washington and Oregon, includes small amounts produced in Montana and Idaho from 1952 through 1961.

r Includes calves.

s Excludes value of crops grown but not harvested, derived from tonnage produced and season average price for each product.

t Cash income from marketings, excludes government payments, value of produce consumed on farms, and gross rental value of farm dwellings.

BASIC INDICATORS OF WASHINGTON BUSINESS AND INDUSTRIAL ACTIVITY

All indexes based on 1967 average = 100

FOREIGN TRADE[1] Washington Customs District			PRICE INDEXES ADJUSTMENT FACTORS[5,6]			ELECTRIC ENERGY PRODUCTION[7]	YEAR
Exports	Imports (millions of dollars)	Total Exports and Imports	Producer Prices f	Consumer Prices f	Construction Costs g	millions of kwh	
70.3	34.9	105.2	41.6	41.9	20.3	3,376	1935-39 Avg.
187.1	69.4	256.5	48.3	47.9	26.9	6,826	1940-44 Avg.
183.5	108.4	291.9	71.0	64.6	46.6	11,783	1945-49 Avg.
233.1	215.3	448.4	87.3	78.0	63.5	20,541	1950-54 Avg.
391.9	342.7	734.6	92.2	84.0	73.0	27,268	1955-59 Avg.
559.9	451.1	1,011.0	94.7	90.7	83.9	40,076	1960-64 Avg.
1,123.4	797.9	1,921.3	101.1	101.1	102.6	60,429	1965-69 Avg.
1,904.8	1,269.1	3,173.9	110.4	116.3	117.3	71,699	1970
2,528.1	1,567.3	4,093.4	113.9	121.3	124.6	73,979	1971
2,438.9	2,005.7	4,444.6	119.1	125.3	135.4	78,656	1972
3,445.5	2,453.0	5,898.5	134.7	133.1	156.4	78,566	1973
4,279.9	4,075.8	8,355.7	160.1	147.7	169.1	90,404	1974
4,199.0	3,972.4	8,171.4	174.9	161.2	183.1	93,560	1975
4,931.2	5,006.1	9,937.3	183.0	170.5	203.2	102,820	1976
4,762.1	5,783.7	10,545.8	194.2	181.5	219.9	78,931	1977
6,399.5	6,678.2	13,077.7	209.3	195.4	247.5	99,139	1978
9,631.5	7,967.7	17,599.2	235.6	217.4	274.5	90,834	1979
11,966.3	9,177.1	21,163.4	268.8	246.8	286.9	92,325	1980
12,270.7	9,951.0	22,221.7	293.4	272.4	308.6	102,649	1981

FOOD PRODUCTS

CANNED FOODS[9] Pacific Northwest [1]		FROZEN FOODS[9] Washington - Oregon		CANNED SALMON[10]			WHEAT FLOUR PRODUCTION[11]	YEAR
Fruits and Berries m	Vegetables	Fruits and Berries	Vegetables n	Alaska	Washington	Oregon	Washington	
thousands of standard cases		millions of pounds		thousands of cases			thousands of sacks	
6,542	5,558	53.2	17.7	6,459	340	339	9,289	1935-39 Avg.
7,039	10,587	95.6	58.5	5,460	262	277	10,761	1940-44 Avg.
7,378	13,102	134.5	138.4	4,203	643	235	12,006	1945-49 Avg.
7,149	16,625	132.5	252.3	3,304	826	142	9,364	1950-54 Avg.
7,699	19,741	165.6	386.6	2,519	587	128	9,628	1955-59 Avg.
7,017	21,085	180.1	791.4	3,091	310	75	10,058	1960-64 Avg.
7,645	26,433	184.4	1,936.5	2,834	270	88	7,852	1965-69 Avg.
7,455	23,417	181.2	2,536.3	3,565	189	58	7,808	1970
8,422	24,749	181.6	2,624.5	2,899	483	151	7,227	1971
8,437	23,393	135.5	2,764.4	1,705	190	35	7,609	1972
8,859	27,023	119.3	3,096.9	1,209	305	32	6,667	1973
9,884	32,035	110.4	3,431.0	1,343	578	56	6,781	1974
8,456	27,221	130.7	3,422.2	1,384	162	9	5,909	1975
9,256	27,826	176.8	3,766.6	2,470	136	6	6,833	1976
8,875	22,416	158.5	3,979.1	2,595	231	2	7,067	1977
7,786	28,248	111.6	4,214.5	2,922	11	2	7,413	1978
9,727	31,821	115.7	4,285.1	3,049	144	o	7,740	1979
9,936	30,760	152.8	3,894.4	4,175	26	o	7,737	1980
8,741	25,112	154.9	4,264.6	4,432	203	0	7,233	1981

AGRICULTURAL PRODUCTION — WASHINGTON [13, 14]

HOPS	EGGS	PEARS	SWEET CHERRIES	GRAIN CORN	FARM INCOME		YEAR
					VALUE OF PRODUCTION[8]	CASH RECEIPTS[1]	
thousands of pounds	millions of eggs	thousands of tons	thousands of tons	thousands of bushels	millions of dollars		
9,172	833	161	15.6	1,140	na	145.7	1935-39 Avg.
13,981	873	170	24.3	1,064	355.6	306.7	1940-44 Avg.
20,830	740	183	29.6	1,023	562.1	519.2	1945-49 Avg.
24,493	764	131	17.9	1,572	610.5	523.3	1950-54 Avg.
25,315	937	120	17.7	3,764	586.7	528.9	1955-59 Avg.
27,833	1,030	114	18.9	2,925	648.3	595.4	1960-64 Avg.
32,483	1,048	128	16.0	2,189	803.9	751.3	1965-69 Avg.
31,416	1,079	155	28.5	4,558	892.4	794.9	1970
32,697	1,021	165	33.9	6,222	954.6	818.2	1971
34,752	1,033	153	21.2	5,184	1,177.7	1,070.4	1972
36,668	1,058	187	45.5	5,618	1,823.2	1,600.4	1973
38,979	1,085	213	45.0	2,970	2,005.7	1,792.5	1974
37,701	1,084	219	43.1	3,536	1,993.5	1,828.1	1975
41,160	1,058	235	54.3	4,708	1,931.9	1,836.6	1976
37,904	1,063	224	47.0	7,616	1,886.0	1,763.8	1977
40,044	1,121	246	59.3	7,410	2,254.5	2,159.5	1978
40,140	1,172	246	67.6	11,931	2,524.5	2,172.0	1979
55,952	1,295	256	48.3	11,000	2,932.3	2,705.4	1980
59,470	1,332	272	44.4	12,875	3,054.4	3,010.0	1981

SOURCES

1. Bureau of the Census, U.S. Department of Commerce
2. Bureau of Economic Analysis, U.S. Department of Commerce
3. F.W. Dodge Division, McGraw-Hill Information Systems Co.
4. Department of Revenue, State of Washington
5. Bureau of Labor Statistics, U.S. Department of Labor
6. The American Appraisal Company
7. U.S. Department of Energy
8. Employment Security Department, State of Washington
9. Northwest Food Processors Association
10. Pacific Packers Report
11. Western Wood Products Association
12. American Plywood Association
13. Washington Crop and Livestock Reporting Service
14. Economic Research Service, U.S. Department of Agriculture

Washington Manufacturing Gross Income[1]

Twelve Months Ending September 30, 1981

	Millions of Dollars	Percent of Total
FOOD PRODUCTS	$ 4,801.4	14.9
Meat products	1,048.0	3.3
Canning and preserving	987.6	3.1
Beverages	780.1	2.4
Dairy products	649.5	2.0
Grain mill and bakery	560.8	1.7
Other	775.5	2.4
FOREST PRODUCTS	$ 6,415.6	19.9
Lumber and wood	3,725.8	11.6
Paper and allied	2,571.4	8.0
Furniture and fixtures	118.4	0.4
AEROSPACE	$ 8,380.6	26.0
OTHER	$12,579.7	39.1
Primary metals	2,728.9	8.5
Petroleum refining	2,227.2	6.9
Machinery	1,718.0	5.3
Chemicals and allied	949.7	3.0
Printing and publishing	908.7	2.8
Shipbuilding	839.7	2.6
Fabricated metals	793.9	2.5
Stone, clay, and glass	677.4	2.1
Apparel and textiles	440.9	1.4
Miscellaneous	1,295.3	4.0
TOTAL	$32,177.4	100.0

Value of Farm Products[2] - 1981

State of Washington

	Millions of Dollars	Percent of Total
FIELD CROPS	$1,452.4	47.6
Wheat	665.0	21.8
Potatoes	199.0	6.5
Hay	180.5	5.9
Barley	110.2	3.6
Hops	89.2	2.9
Grain corn	39.3	1.3
Seed crops	30.8	1.0
Silage corn	29.5	1.0
Dry edible beans	29.1	1.0
Other	79.8	2.6
LIVESTOCK AND DAIRY	$ 862.1	28.2
Milk	407.0	13.3
Cattle and calves	323.0	10.6
Eggs	64.5	2.1
Chickens and broilers	33.4	1.1
Other	34.2	1.1
FRUITS AND BERRIES	$ 456.0	14.9
Apples	299.7	9.8
Pears	54.2	1.8
Sweet cherries	41.5	1.3
Grapes	30.1	1.0
Other	30.5	1.0
SPECIALTY	$ 146.2	4.8
VEGETABLES	$ 137.8	4.5
Asparagus	29.3	1.0
Other	108.5	3.5
TOTAL	$3,054.4	100.0

SOURCES

1. Washington State Department of Revenue.
2. Washington Crop and Livestock Reporting Service.

regarding the figures:

All data in the statistical supplement are drawn from standard sources, as indicated, with a few exceptions where we have supplied our own estimate to bring a series up to date.

Highlights of 1981

Employment

Renewed recession in national markets depressed the Washington economy through most of 1981. Nonfarm payroll employment, adjusted for normal seasonal fluctuations, peaked in the February-March period at 1.62 million workers, then declined as the year progressed. On an annual average basis, employment dropped less than 1 percent; measured from December 1980 to December 1981, however, the reduction was in excess of 2.5 percent or 40,000 workers.

Income & Prices

Personal income statewide advanced 10.8 percent to $47.5 billion in 1981. This represented the third consecutive year in which the pace of income growth slowed. In contrast to the past several years, however, the rate of consumer price inflation also moderated; consequently, in terms of changes in real purchasing power, 1981 produced a slight improvement over the prior year.

Aerospace

Sales of the Boeing Company rose to $9.8 billion in 1981 from $9.4 billion in 1980. At year-end 1981, the order backlog stood at $19.4 billion, off only slightly from $20.0 billion twelve months earlier. A number of economic and financial factors, however, combined to inhibit airlines' capability to order new equipment; new orders for commercial jet transports fell to $6.1 billion in 1981 compared to $10.3 billion in the preceding year. Boeing military business grew in 1981. Reflecting a slowing pace of aircraft deliveries, aerospace employment in Washington State declined by over 5,000 workers during 1981.

Forest Products

High mortgage interest rates and slack housing construction continue to hold some segments of the forest products industry in recession. Washington State lumber and plywood employment averaged 44,100 in 1981. The 1981 level was off 6 percent from average employment in 1980, but about 20 percent below the most recent peak in 1978. Correspondingly, 1981 lumber production statewide was down 6 percent from 1980 but nearly 30 percent from 1978. The pulp and paper sector has begun to reflect the more generalized impact of recession on markets for paper products; employment in 1981 slid about 3 percent from 1980 to 17,100.

Agriculture and Food Processing

Washington State's farm value of production rose 4 percent in 1981 to $3.1 billion — edging above the prior record value attained in 1980. Wheat and beef production levels were up slightly to set new records; prices remained weak for the second consecutive year. Potato, barley, and grain corn output was up sharply, but prices came under some downward pressure. In contrast, the apple crop was off slightly, but prices were up by more than one third. Food processing employment declined moderately over the year, falling 2 percent to an annual average of 31,300 employees.

Other Basic Industry

Employment in diversified manufacturing industries dropped 2 percent in 1981 to an average level of 130,300 as national recession weakened product markets. Reductions in activity concentrated in the closing months of the year. Experience varied by industry. By December, primary metals employment was off 9 percent from the year-ago level; overland transportation equipment jobs, off 12 percent. In contrast, employment in private shipbuilding advanced 6 percent, and in miscellaneous durable goods, including instruments, 4 percent.

Construction

The value of new construction contracts issued in Washington declined 24 percent to $3.6 billion in 1981, following a 16 percent drop the preceding year. Residential and nonresidential building contracts were each valued at $1.3 billion in 1981, representing a decline from the prior year of 19 percent for residential but a slight gain for nonresidential. Housing starts totalled 25,000 units, down 26 percent over the year and down by more than half from the 1979 count. Construction employment, adjusted for seasonality, declined gradually throughout the year and was down 4 percent from 1980 on an annual average basis.■

Crude oil from Alaska is unloaded at Mobil's Ferndale refinery. Washington's four major refineries serve consumer markets in the Pacific Northwest and northern California. Courtesy of Mobil Oil Corporation.

According to the 1980 Washington Mill Survey*, about 40 percent of all logs harvested from Washington forest lands were exported, up from 28 percent in 1972. Further, wood chip exports in 1980 from the Washington and Oregon Customs Districts totalled $273 million, about a quarter the value of log exports.

Washington manufacturers of forest products import about 4 percent of their log supply, according to the Mill Survey. As might be expected, producers in border areas are most dependent on imports. The Lower Columbia region, centered at Longview, received over 10 percent of its log supply from Oregon in 1980. Import dependency in southwest Washington varies considerably by type of mill. Lumber mills in the Lower Columbia received about 6 percent of their logs from Oregon; while, at the other extreme, 45 percent of pulpwood logs came from there. The Inland Empire region of eastern Washington is also dependent on other states, with sawmills importing almost 10 percent of their logs from Oregon and Idaho. The same year, Puget Sound shake and shingle mills imported almost one fifth of their logs from British Columbia, up from just 1 percent in 1976.

Washington pulp and paperboard processors also imported a large fraction of their consumption of sawdust, shavings, and chipped roundwood (as opposed to chips left from milling); almost one fifth of these materials came from out of state. The Olympic Peninsula producers rely heavily on British Columbia for inputs, while producers in the Lower Columbia and Inland Empire regions look largely to Oregon. Puget Sound producers pull in large amounts of wood fiber from Idaho and Montana.

Natural resource commodities and related processing and services, then, play an important role in the Washington State economy. Exports of forest, farm, and fishery products processed from local inputs, as well as from imports from surrounding areas, are large contributors to the employment base. Energy imports serve local consumers, and electricity exports help keep rates down. These linkages allow the region to maximize benefits from its specialized resource base.

* *1980 Washington Mill Survey, Washington State Department of Natural Resources, Annual.*

Transpacific Ties

Washington State plays a dual role in the international movement of commodities. It is a direct participant in foreign trade and also a natural conduit for U.S. transpacific trade. Aside from aircraft exports and overland trade with Canada, virtually all of Washington's foreign trade is waterborne. Washington ports handled 15.0 million short tons of imported waterborne cargo in 1981 valued at $15.3 billion and 24.6 million short tons of export cargo valued at $5.7 billion. Though 1981 was a disappointing year due to recession at home and abroad, trade growth has been strong over the past several years.

Washington's waterborne trade is predominately with the rapidly expanding Pacific Rim economies: Thailand, Malaysia, Singapore, Indonesia, Philippines, People's Republic of China, South Korea, Hong Kong, Taiwan, Japan, Australia, and New Zealand. In 1981 these countries took 83 percent of Washington's exports, on a value basis, and provided 86 percent of the state's imports. Japan alone accounted for 48 percent of exports and 42 percent of imports. The Pacific Rim, as a whole, has a large and rapidly expanding manufacturing sector whose output is in great demand in North America. It also provides the resource-rich Pacific Northwest with an export market for food and forest products.

* *Washington State ports are major entry points for Japanese cars, trucks, and motorcycles. Chevy Luv trucks at the Port of Tacoma await shipment to Midwestern and East Coast dealers. Courtesy of Port of Tacoma.*

Import Gateway

Most waterborne imports are actually destined for markets east of the Rockies; only about 45 percent by value remain in the Pacific Northwest. This is especially true of consumer goods. Autos and other road vehicles, mostly from Japan, were the single largest import commodity in 1981 with a value of $2.2 billion. Telecommunications and sound equipment from Japan, Taiwan, Korea, Hong Kong, and Singapore ($1.9 billion) and apparel from Hong Kong, Taiwan, and Korea ($1.3 billion) were also headed mainly for the midwestern and eastern United States and Canada.

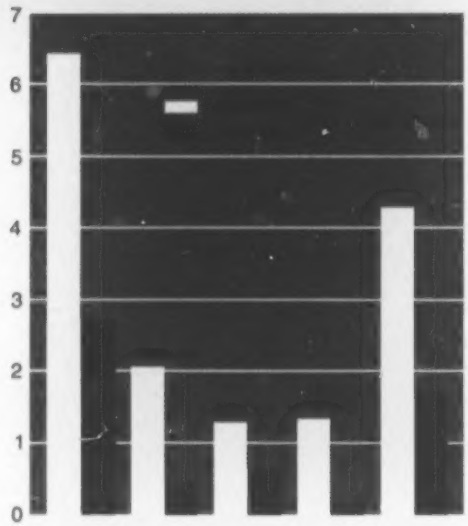
Not all of Washington's major waterborne imports are simply in transit, however. While local consumption demand is limited, commodities are imported to support the region's manufacturing base. Chief among these are petroleum and related products, which totalled $1.3 billion in 1981. Indonesia was the largest single supplier, though much came from other countries in the Pacific Rim, the Mideast, and Africa. Alumina from Australia and Jamacia is another important example.

Homegrown Exports

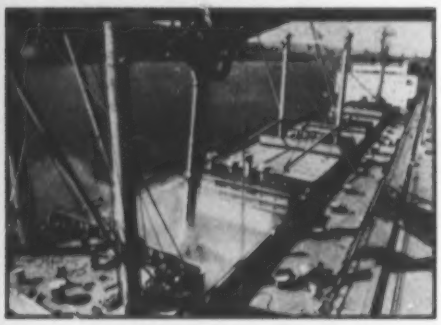
Washington's waterborne exports, in sharp contrast, are almost entirely regional; about 85 percent originate in the Pacific Northwest. Cereals, destined mainly for Japan, Taiwan, Korea, and the Philippines led the export commodities shipped from Washington ports at $1.6 billion in 1981. (Due to the vagaries of Customs District data, much Washington wheat is not included in this total since it exits through Portland; conversely, corn grown in the Midwest is included.) Logs, lumber, woodchips, and pulp, exported predominately to Japan, amounted to $910 million in 1981 and nonferrous metals, largely aluminum and alloys to Japan, Korea, and Taiwan, were valued at $380 million. Japan was the largest single consumer of Washington's $360 million fish and shellfish exports; most of the rest was exported to Europe. Japan, Taiwan, and Hong Kong were the principal recipients of the $320 million fruit and vegetable exports, but major markets ranged from South America to Europe.

DISTRIBUTION OF FOREIGN WATERBORNE TRADE
Washington State
1981

Washington's waterborne foreign trade is predominately with Pacific Rim nations, especially Japan, Taiwan, Korea, and Hong Kong. These four accounted for more than 72 percent of the $15.3 billion in waterborne imports to the state in 1981 and more than 70 percent of the $5.7 billion in exports. The import value has swollen in recent years with the inclusion of growing quantities of motor vehicles and containerized cargo destined for points east of the Rockies.



Source: U.S. Department of Commerce



• Eastern Washington's soft white wheat is transferred from barges to bulk grain carriers at the Port of Portland and other lower Columbia River ports for export to Asia. In contrast, Montana wheat travels by rail to Seattle for transshipment. Courtesy of Washington Association of Wheat Growers.

Canadian Commerce

The waterborne trade data exclude virtually all trade with Canada, Washington's second largest trading partner. Data compiled by Statistics Canada (while not strictly comparable to U.S. Customs figures) describe the principal commodity flows.

Imports by Washington entities from Canada totalled $4.2 billion (Canadian) in 1981. Most of this consisted of energy resources. Natural gas alone accounted for $2.6 billion; crude oil, electricity, and petroleum and coal products added $730 million. Imports of forest products accounted for another $310 million. Surprisingly, motor vehicles and parts, primarily from Ontario, were a significant import commodity at $110 million, and other transportation equipment, preponderantly aircraft parts, totalled $80 million.

Aerospace leads Washington's exports to Canada. Sales of aircraft and parts came to $320 million (Canadian) of the $1,160 million total in 1981. Washington also exported a variety of industrial and agricultural machines to Canada valued at $110 million. Exports of foods products, consisting mostly of fish, fruits, and vegetables, were $170 million in 1981, and forest products exports were valued at $100 million.

On the Horizon

The outlook for Washington's foreign trade remains bright. A high rate of growth is expected in the Pacific Rim area, which bodes well for exports of the Northwest's resource-related commodities and further increases in U.S. imports of manufactured goods from Asia. While Japanese growth is generally expected to slow somewhat in the Eighties, it will still be strong, exceeding growth in the U.S. and Western Europe. Other Pacific Rim countries, such as Korea and Taiwan, will become increasingly important as they continue to grow at very high rates.

Reductions in tariffs and other barriers to trade could enhance Washington export markets. Considerable pressure is being applied to the Japanese to reduce their trade surplus; food and forest products would benefit from further opening of Japanese markets to U.S. exports. Rocky Mountain coal is another potential source of export growth. There are major uncertainties concerning the prospects for coal exports through Washington, however, including the level of Asian demand, competition from Australia and other coal exporting countries, and competition from coal ports being developed in other West Coast states for the U.S. export business.

Capital Contributions

Washington State is also linked to foreign economies through investment. A net importer of capital, the Pacific Northwest has always relied on outsiders for investment funds. Increasingly this is taking the form of foreign investment. In a 1979 survey of foreign investment in the Pacific Northwest*, 212 foreign investments of $100,000 or more were identified in Washington State. The count understates the total contribution, moreover, since some investments were missed.

Canadian firms participated in 88 of the foreign investments listed. Canadian investments were concentrated in agriculture and forestry and other real estate related concerns. Japanese firms were also heavy investors in Washington. The 60 investments identified were especially concentrated in the seafood processing industry and in wholesale trade.

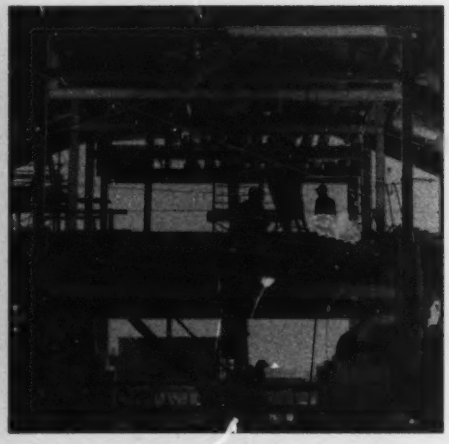
Foreign interest in the Northwest does not appear to be waning. The Economic Development Council of Puget Sound reported that 11 of the 17 EDC-assisted investment decisions of 1981 were foreign, of which 4 were Canadian and 4, Japanese. Several Canadian developers are involved in office building and hotel construction in downtown Seattle. The EDC also notes increased interest in Washington State among investors in various European countries.■

* *Foreign Investment in the Pacific Northwest, 1979, Martech Associates, Inc., Portland, Oregon, 1980.*

The Alaska Connection

Over the years, Alaska has provided an important and growing market for Washington State goods and services. Conversely, Washington is an important destination for Alaska's oil and is the key distribution center for its seafoods.

Approximately 80 to 90 percent of the goods Alaska consumes flow through Puget



• *Exploratory activity and oil field development in Alaska lead to jobs in Washington State. The oil-gas-water separation module pictured was built at the Columbia Industrial Park near Vancouver and barged north. Courtesy of Hoffman Construction Company.*

Sound ports. Although Alaska has relatively few people, fewer even than the District of Columbia, its import requirements are disproportionately large. This is partly due to Alaska's oil boom, which has vastly increased income to the state and its citizens, and partly due to the diseconomies of producing a wide range of consumer and industrial products under high cost conditions for a limited market.

Underpinnings of Trade

The Alaskan economy has, from the beginning, depended on natural resources — fish, timber, and minerals — for its livelihood. Additional support has come from a large federal government presence, reflecting Alaska's strategic location and federal ownership of some 70 percent of all land in the state. Almost no manufacturing exists apart from forest products and seafood processing; rather, economic activity jumps from resource extraction to services and government, with the gap in between filled by imports. Government presently provides 41 percent of all Alaska employment, making it far and away the dominant employer. Goods extraction and production, plus construction, account for only 15 percent, while the distributive and service industries provide the remaining 44 percent.

The oil boom reinforced Alaska's unusual economic structure by providing unprecedented revenue to state government. In 1976, the year the trans-Alaska pipeline was completed, taxes and royalties from petroleum jumped to well over half of total state revenue. Since then Alaska has removed its personal income tax, and oil-generated receipts now account for almost 90 percent of unrestricted state revenues. Alaska, moreover, has the highest state revenue per capita of any of the fifty states — nearly a third above the ratio for its closest competitor.

Channeling huge oil revenue windfalls back into the economy has caused an explosion in state and local government payrolls. In 1979, Alaska had by far the most state and local employees per 10,000 residents of any state, and additional hiring has since taken place. Furthermore, in FY1982, 25 percent — $1.4 billion — of state budget appropriations were allocated to capital projects such as schools, dams, airports, and highways, creating added jobs in heavy construction. Alaska's home mortgage interest subsidy, currently providing funds at a 12.7 percent rate, boosts residential construction employment as well. All told, government at all levels and government-stimulated jobs probably provide at least two thirds of total Alaska employment.

Alaskans are not the only beneficiaries of the oil bonanza; Washington State industries have increasingly been attracted by the magnet of the much-expanded Alaska market. State jobs and spending, and the resulting population and personal income gains, have generated strong growth in the demand for goods — both consumer and industrial — and services from the Pacific Northwest. The mortgage interest subsidy, in particular, has created much needed markets for Pacific Northwest lumber, plywood, and other construction inputs. Moreover, many Washington construction firms, consultants, engineers, and architects have greatly benefitted from the Alaska opportunities.

Waterborne Trade Trends

The Ports of Tacoma and Seattle are vital links in Alaska's lifeline. Seattle is the dominant player in terms of annual tonnage of cargo moving to and from Alaska. Volume peaked during construction of the oil pipeline; it then eased back, but now is again approaching the prior highs. Shipments from Seattle consist mainly of containerized cargo, composed of diverse consumer products as well as industrial equipment and supplies. The Port of Tacoma, meanwhile, has garnered an increasing share of the Alaska trade, specializing in the shipment of foodstuffs, lumber, refined petroleum products, motor vehicles, and oil-industry related modules. The modules — special purpose structures complete with appropriate equipment or furnishings — are especially important in that they are assembled on, as well as shipped from, Port of Tacoma land. Units recently built have been primarily for separating oil from water and natural gas and reinjecting the latter materials back into the reservoir to enhance recovery pressure. A few are also being constructed for living quarters and storage space. Approximately 1,000 workers are currently employed in Tacoma's module construction.

Inbound traffic from Alaska consists mostly of oil, seafood, and timber. Although most of the throughput from the Alaska pipeline goes to refineries in California, the portion refined in Washington is substantial and slated to increase. Seattle continues to be the key distribution center for Alaska salmon and other seafoods, and Washington mills purchase pulping logs from Alaska that are not of appropriate quality for export to Japan for construction use. Miscellaneous items such as furs and handicrafts are included in the usually light return hauls of general cargo vessels.

Outlook

Over the long run, development of Alaska's rich resources promises heightened demands for goods and services from the "Lower 48", with Washington State likely to get a big slice of the business. Near term, however, numerous impediments have surfaced.

• *Heavy trucks such as this Peterbilt vehicle, product of PACCAR, Inc., are in demand in Alaska for hauling pipe, pumps, and other equipment to North Slope sites from Anchorage and Fairbanks. Courtesy of Peterbilt Western.*

The most important unknown quantity at this point is the future trend in world oil prices. The recent oil glut has caused downward revision of projected state revenues and re-evaluation of some current programs and capital projects. Furthermore, oil companies are rethinking their exploration and development budgets. Weak oil prices thus are not only cutting current state revenues, but they may also be dampening future revenues by lowering enthusiasm for bidding at state oil and gas lease auctions.

Another disappointment has been fading enthusiam for construction of the Alaskan leg of the Canadian and American gas pipeline. The gas project, if it were to go forward, would result in peak construction employment of about 16,000, and the project would produce a flurry of activity for Washington ports, wholesalers, and metal fabricators. At the outset of 1982, prospects for an early start looked good as a result of federal enactment of an antitrust waiver allowing the oil companies to participate in the project's ownership. Subsequently, however, the oil glut and continuing high interest rates have combined to cast serious doubt over the economic feasibility of the project.

Apart from oil and gas, weakness in commodity prices generally is discouraging development of Alaska's resources. Neither minerals nor timber offer enticing investment prospects at present. Finally, the botulism hazard, which has resulted in the recall of more than 60 million cans of salmon packed in 1980 and 1981, has dealt a severe blow to the Alaskan seafood industry. Confidence in the product may take years to rebuild.

Factors out of the control of Alaska — depressed world oil and other commodity prices and the shortcomings of canning machinery — point to a slowdown in economic activity in the immediate future. Longer term, however, increasing natural resource scarcity and the state's commitment to fostering development should reinstate above average growth and thus further expansion of trade from, to, and through Washington State.■

The Human Dimension

People are increasingly mobile. Rising incomes and improvements in transportation networks foster travel for both business and pleasure; widespread access to information about distant places encourages relocations to areas where job opportunities and/or living environments seem more appealing.

Washington State has traditionally been a net destination point for both trips and moves, thanks to its scenic attractions, equable climate, and, in most decades, above average economic growth.

Moving Into Washington

From 1970 through 1981, net migration into Washington State totalled over a half-million people. During the 1970-1973 period, more people moved out of Washington than in, but seven subsequent years of sustained inmigration, peaking in 1978-1980, contributed to a state population growth rate double the national average for the Seventies.

Census data on origin and destination of interstate moves are not yet available for recent years, but records compiled by Allied Van Lines ("the world's largest household goods mover") shed some light on relocation patterns. In 1981 Allied moved almost 50 percent more households in to than out of Washington State. Only seven states, five in the southern half of the country plus Alaska and Vermont, gained more households from Washington than they sent. The highest ratios of net inflow came from the northern mountain and plains states and on east through the northeastern industrial heartland. In total numbers, however, California was by far the most important place of origin, accounting for a quarter of the inmigrants in the Allied sample. California was also the destination for a quarter of the smaller group moving out. Among other leading origins and destinations in terms of volume, Oregon, Colorado, and Texas show up as both. Other important origins — Illinois, Michigan, and New York; destinations — Alaska and Florida.

Net migration to Washington includes more than just interstate moves; foreign immigration is important too. The state has recently taken in more Indochinese refugees than all but three other states. Many more new Americans come to Washington from Pacific Rim countries — Japan, Korea, Taiwan, Hong Kong, and the Philippines — as well as from south of the U.S. border.

Given the local severity of the current recession, Washington may experience some net outmigration near term, as it did in the early Seventies. Over the decade, however, the attractions of the state as a business location and a pleasant place to live are expected to result in above average population growth once again.

• *Wide open space characterizes the Pasayten Wilderness of Washington State near the Canadian border. The richness and diversity of Washington's natural landscapes attract tourists and residents alike. Courtesy of Okanogan National Forest.*

Revolving Populations

Many people temporarily go to other states for work, school, or military service. Sometimes the sojourn leads to permanent relocation.

On balance, work draws more people temporarily out of Washington State than in.

ORIGIN OF U.S. TRAVELERS TO WASHINGTON STATE 1977

In 1977, 4.5 million U.S. citizens made round trips of over 200 miles to Washington State. Almost two thirds of these interstate visitors came from the four western states of Oregon, Idaho, California, and Alaska. Travel to Washington was also surprisingly strong from the sparsely populated northern mountain and plains states, from Montana and Utah east to the Dakotas and Nebraska.

Source: U.S. Bureau of the Census

The residence adjustment in Washington State's personal income account has been positive every year since recording began in 1969, reflecting a net inflow of income earned outside the state by Washington residents. Seasonal and cyclical work in Alaska's resource industries and commuting to jobs in Portland, Oregon, account for most of this statistical adjustment. The adjustment jumped 64 percent in real dollars from 1974 to 1976 as the oil pipeline was built across Alaska. The Alaskan economy has remained on a higher plateau since oil began flowing, and so has the residence adjustment for Washington personal income.

Educational opportunities are a magnet for temporary residents. This winter quarter at the University of Washington one fourth of the almost 32,000 student body was from out of state, and fully one half of the 7,000 graduate students. California (15 percent of all out-of-state students), Oregon, and Hawaii led the list of home states. The largest foreign contingents came from Korea, Vietnam, Taiwan, and Canada, with 105 countries represented in all.

Another transient element of population is the military. Since Vietnam, armed forces personnel in Washington have stabilized at about 50,000, a little over 1 percent of the total population. Some of these have in the past and will in the future elect to return as permanent residents.

Evergreen Destination

In 1977, the year of the latest travel census, 4.5 million out-of-state Americans traveled at least 200 miles round trip to visit Washington destinations, while Washington residents made only 3.4 million comparable "person-trips" to destinations outside the state. An additional 1.4 million out-of-staters traveled through Washington on their way to other places, and six out of ten of these stayed over at least one night. Almost two thirds of the interstate travelers to Washington came from only four states — Oregon, Idaho, California, and Alaska. An additional 20 percent of visitors came from the northern tier of the mountain and plains states. The midwestern and northeastern industrial belt accounted for 10 percent of out-of-state travelers to Washington, and only 5 percent came from all the southern states from Arizona to the Atlantic seaboard. Of course, many people from Oregon and Idaho came to Washington on round trips shorter than 200 miles.

Also in 1977, 1.7 million Canadians entered Washington. A half million of the Canadian visitors were on vacation trips, and almost 60 percent of these were from British Columbia. Only 8 percent of all Canadian vacation trips to the U.S. were to Washington, but the state's share of nonvacation trips was 21 percent, second only to New York. A considerable part of this 1977 travel represented shopping trips, as Bellingham merchants could attest. A total of 120,000 visitors came to Washington from other foreign countries in 1977.

About three fourths of travelers to Washington come by car, but air travel is important since the state is relatively isolated from major population centers. Nearly a quarter of the 900,000 out-of-state air arrivals in 1977 were Californians. Alaskans and Oregonians were 11 and 9 percent, respectively. The distribution of origins of air travelers to Washington demonstrates the state's basic linkages with northwestern, western, and midwestern states. Over 10 percent of all inbound air passengers came from foreign countries in 1977, led by Canada and Great Britain.

Whether for trips or moves, the pattern of people circulating in and out of Washington State is not unlike that for flows of goods, services, information, and money. As expected, interaction with our Pacific Northwest neighbors, Oregon and Idaho, is high. California's large population, relative proximity, and economic dominance of the West contribute to the sizable movement of people between the Golden and Evergreen States. Because of Alaska's special relationship to Washington, there is a much higher rate of interaction between the two states than distance and population alone can account for. Even though British Columbia is closer than Alaska, its interaction with Washington is kept artificially low by an intervening international boundary — even though a rather open one. Apart from the West Coast, the migration and travel data reveal Washington's underlying linkages with the northern band of states all the way from Montana to New York. Ties with selected sunbelt states — notably Colorado, Texas, and Florida — seem to be strengthening.■

• *The Alaska State Ferry Columbia arrives at Seattle — its southernmost port of call. A trip on the scenic route through the Inside Passage is a popular travel experience. Courtesy of Alaska Department of Transportation and Public Facilities.*

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